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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,448	10/25/2001	Yasuo Suda	1232-4782	2051

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EXAMINER	
QUIETT, CARRAMAH J	
ART UNIT	**PAPER NUMBER**
2622	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/028,448	SUDA, YASUO	
	Examiner	Art Unit	
	Carramah J. Quiett	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10,11 and 34-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10,11 and 34-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment(s), filed on 12/01/2006, have been entered and made of record. Claims 10-11 and 34-37 are pending.

Response to Arguments

2. Applicant's arguments with respect to claim 10 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. **Claims 10-11** and 34-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (U.S. Patent #6,337,713) in view of Kinoshita et al. (U.S. Patent #5,726,709).

For **claim 10**, Sato discloses an image sensing apparatus (fig. 1) comprising:

a single solid-state image sensing element (fig. 2) having first and second image sensing areas (A and B) with substantially the same size on a single plane (col. 6, lines 22-59);

a photographing optical system (fig. 1, ref. 102) that respectively forms first and second object images on the first and second image sensing areas (col. 5, lines 35-45); and

a signal processing device (figs. 1/4, refs. 105/108/110) that processes an output signal from said image sensing element (col. 5, lines 46-59),

Sato also *inherently* teaches wherein each of the first and second image sensing areas has a matrix of a plurality of pixels arranged at a pitch a (horizontal path) in the horizontal direction and a pitch b (vertical path) in the vertical direction on a light-receiving surface, the first and

second image sensing areas have a positional relationship, said image sensing element forms first and second images have substantially the same fields of view. In fig. 4, Sato discloses a horizontal-clock-pulse generator and a vertical-clock-pulse generator. Please read col. 5, lines 35-45; col. 6, line 60 – col. 7, line 65 and see figures 1-4.

Sato eliminates the boundaries between the sensing areas by regulating the respective control voltages (col. 8, line 64 – col. 9, line 26). However, Sato does not expressly teach in which the first and second image sensing areas are separated axhxc in the horizontal direction horizontally and bxc in the vertical direction (where h is a positive integer and c is constant), said image sensing element forms first and second images which are formed to have an identical spectral distribution, and said signal processing device generates a composite image signal based on the first and second images.

In a similar field of endeavor Kinoshita teaches an apparatus in which the first and second image sensing areas are separated axhxc in the horizontal direction horizontally and bxc in the vertical direction (where h is a positive integer and c is constant) (col. 6, lines 57-63; col. 7, lines 23-26 and 49-59), said image sensing element forms first and second images which are formed to have an identical spectral distribution and have substantially the same fields of view (col. 7, lines 3-8), and said signal processing device generates a composite image signal based on the first and second images (col. 7, lines 3-8; col. 8, line 38-47). Also, please see figs. 1-13 and read col. 6, lines 39-63; col. 7, lines 3-59. Please note that in col. 5, lines 57-67, Kinoshita defines the horizontal pixel pitch as 5.7μm (pitch a) and the vertical pixel pitch as 5.0μm (pitch b). Then in col. 6, lines 57-63 and col. 7, lines 23-26, Kinoshita teaches that image sensor DG1 and DG2 are shifted with a vertical one pixel pitch (axhxc, where h = c = 1) and shifted with a

half horizontal pixel pitch (bxc, where c = ½). Please see figs. 6B and 6C. In light of the teaching of Kinoshita, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the image sensing arrangement of Sato wherein the first and second image sensing areas are separated axhxc in the horizontal direction horizontally and bxc in the vertical direction (where h is a positive integer and c is constant), the image sensing element forms first and second images which are formed to have an identical spectral distribution, and said signal processing device generates a composite image signal based on the first and second images. This modification provides an increase in the resolution thereby improving the quality of the image (Kinoshita, col. 1, lines 34-54).

For **claim 11**, Sato, as modified by Kinoshita, discloses the apparatus wherein said signal processing device corrects a change in spacing between the first and second images during processing of an output signal, and forms a composite image signal based on the first and second images. In Sato, please read col. 8, line 64 – col. 9, line 26 and in Kinoshita, please read col. 8, lines 13-47 and col. 9, lines 5-45.

For **claim 34**, Sato, as modified by Kinoshita, discloses the apparatus wherein the photographing optical system inherently includes a photographing lens and a stop (col. 5, lines 35-45). However, Sato, as modified by Kinoshita does not expressly disclose a stop having a plurality of apertures, the stop being arranged in parallel with the single image sensing element. Examiner takes *Official Notice* that it is well known in the art to have a stop with a plurality of apertures, the stop being arranged in parallel with the single image sensing element. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the image sensing arrangement of Sato, as modified by Kinoshita to include a stop with a

plurality of apertures, the stop being arranged in parallel with the single image sensing element in order to control the resolution in one or more areas in the image or along one or more axes in the image plane.

For **claim 35**, Sato, as modified by Kinoshita, discloses the apparatus wherein the single image sensing element is a *single CCD* or* CMOS element (Sato, col. 5, lines 35-45).

For **claim 36**, Sato, as modified by Kinoshita, discloses the apparatus wherein the single image sensing element has an image sensing surface defining the single plane and including the first and second image sensing areas (Sato, col. 6, lines 22-59 and see fig. 2 and fig. 4, ref. 104).

For **claim 37**, Sato, as modified by Kinoshita, discloses the apparatus with an optical system (Sato, col. 5, lines 35-45). However, Sato, as modified by Kinoshita does not expressly disclose the apparatus wherein the first and second image sensing areas have formed thereon microlenses. Examiner takes *Official Notice* that it is well known in the art to have the first and second image sensing areas have formed thereon microlenses. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the image sensing arrangement of Sato, as modified by Kinoshita with the first and second image sensing areas have formed thereon microlenses in order to control the resolution in one or more areas in the image or along one or more axes in the image plane.

*__Note__: The U.S. Patent and Trademark Office considers Applicant's "or" language to be anticipated by any reference containing one of the subsequent corresponding elements.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tagen et al. (U.S. Pat. #6,765,617)	An optoelectronic camera comprises an objective system formed by a number of optical active structures
Morris et al. (U.S. Pat. #6,665,010)	An imager includes groups of pixel sensing units and a control circuit.
Rostoker (U.S. Pat. #5,977,535)	A camera comprising arrangements with two or more optical elements.
Fossum et al. (U.S. Pat. #5,949,483)	A CMOS with microlenses providing multiresolution readout.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carramah J. Quiett whose telephone number is (571) 272-7316. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CJQ
February 7, 2007

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER